

## NOTES ON THE LAND SHELLS OF QUEBEC CITY AND DISTRICT.

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 BY A. W. HANHAM.
 

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In this district the Isle d'Orleans may be considered the only rich collecting ground in species; all the following, with one or two exceptions, having been taken there, while many of the small species have not been observed elsewhere. The other good localities in the district are: St. Joseph's (deLevis) for *Vitrina*, *Vallonia*, and *Vertigo*; St. Romauld's for *Polygyra* and *Vertigo*; the Plains of Abraham for the introduced *Helices*, ribbed *Vallonia*, and *Pupa armifera* Say, and a ravine off the River St. Charles, near the city, for *Vitrina*, some of the *Zonites* and *Succinea*.

It may be stated here that the Isle d'Orleans lies in the St. Lawrence, about five miles below the city. The island is twenty-one miles long by one or two broad, and during the summer months there is a regular ferry service; only a few miles of the end nearest the landing have been worked.

On May 25, 1893, the day after my return from Barachois, Gaspé, I distributed nearly fifty young *H. hortensis* L. (from a quarter- to a half-grown) along the top of the cliff bordering the Plains of Abraham; this is where both *H. cantiana* Mont. and *H. rufescens* Penn. seem to thrive. On July 29 I noticed two full-grown specimens, both the plain yellow form, and, on September 15, another, this one banded. I see no reason why this locality and climate should not suit *H. hortensis* L., as it has, without doubt, the other introduced species. I have a record of this *Helix* being taken as far as far up the St. Lawrence as Little Métis.

*Selenites concava* Say. Local, throughout the district.

*Limax agrestis* Müll. Common,

*Limax campestris* Binn. Rather local.

*Limax* sp. Rare; in two or three places only (Lake Beauport and Isle d'Orleans).

*Vitrina limpida* Gould. Taken in three localities only: abundant under cliff close to the St. Lawrence River at St. Joseph's; a small colony near St. Romauld's, and some fine ones from the banks of creek running into the river at St. Charles.

*Zonites cellarius* Müll. In drift on Isle d'Orleans, and a few up the St. Charles River. None living, but many shells containing the animal.

*Zonites nitidus* Müll. Quite rare, a few from banks of creek, St. Charles River.

*Zonites arboreus* Say. Plentiful, but not often in good condition.

*Zonites radiatulus* Alder. Plentiful.

*Zonites binneyanus* Morse. Well-distributed, but never abundant.

*Zonites ferreus* Morse. Both rare and local.

*Zonites exiguus* Stimpson. Woods, Isle d'Orleans, very abundant.

*Zonites fulvus* Drap. Fairly abundant.

*Zonites multidentatus* Binn. Isle d'Orleans only; rare.

*Tebennophorus caroliniensis* Bosc. Occasional.

*Pyramidula alternata* Say. Widely distributed, but only common on side of cliff, Isle d'Orleans.

*Pyramidula striatella* Anth. Common everywhere.

*Pyramidula asteriscus* Morse. Plentiful in a piece of swampy wood, Isle d'Orleans, area of distribution very limited, and no trace elsewhere in district. I got a good supply of these shells by taking home a quantity of dead leaves and débris, and sifting them during the winter evenings.

*Helicodiscus lineatus* Say. Rather abundant under accumulations of dead leaves in damp woods.

*Acanthinula harpa* Say. Exceedingly common in a small, rather dry clearing (covered with a little low bush and bracken) between woods, Isle d'Orleans. Early one morning, after a very damp night, Mr. Latchford took a number off the trunks of the small trees in this clearing. On mainland, traces found in two widely separated localities.

*Punctum pygmæum* Drap. Fairly common.

*Helix rufescens* Penn. Very abundant throughout the city, especially on the cliffs and city walls. Extends along the cliff some distance up the St. Lawrence; a large colony noticed at St. Sauveur; a few up River St. Charles, and a small colony on the Isle d'Orleans, close to the ferry landing. Recorded from Levis by the Abbé Bégin. This species appears to be spreading rapidly.

*Helix cantiana* Mont. Common on cliff bordering Plains of Abraham and extending to the citadel. Not noticed in the city.

*Polygyra albolabris* Say. Well distributed, but not common.

*Polygyra albolabris* var. *maritima* Pils. Some half-dozen examples, apparently this variety, taken here.

*Helix dentifera* Binn. Local, but where found at all, more plentiful than *albolabris* or *sayii*. At St. Romauld's a small colony was

discovered on the cliff side on May 9, 1893, all still in hibernation. In the more elevated parts of a small piece of rather swampy woods off the St. Foye road, not far from the city limits, this shell was rather common. Living shells all presented a more or less worn appearance, the tooth was often lacking in seemingly full-grown individuals, and they seldom approached in size, and were generally more fragile, than those occurring on the Isle d'Orleans. From this I should judge that their surroundings were not exactly healthy or suitable ones, and they no doubt owe their existence here to the fact of the wood being a private preserve, comparatively undisturbed by man or beast. No other *Mesodon* was seen here.

This good species was first taken in the vicinity of Quebec City by Mr. Latchford, of Ottawa, Ont., the occasion being a visit to the Isle d'Orleans on August 16, 1891. Since that date a good number have been taken there, all, without exception, on the cliffs on both sides of the islands; at some places within a few yards of high water mark of the St. Lawrence River. On the cliff side having a northern exposure, the vegetation is decidedly rank, and where there is a good deal of moist, shaly rock mixed with dead leaves, etc., live specimens are sure to be plentiful and in fine condition.

On May 27, 1893, chiefly from an old unused path on the cliff side, I made the following capture: *Selenites concava* Say, 66; *Pyramidula alternata* Say, 59; *Polygyra albolabris* Say, 1; *Polygyra dentifera* Binn., 71; *Polygyra sayii* Binn., 29; *Polygyra monodon* Rack., 15; *Succinea obliqua* Say, 9—all good and mostly living shells.

*Polygyra sayii* Binn. This species is more widely distributed than *P. dentifera* Binn. along the cliff side on the mainland (northern exposure only). On the island it occurs with *M. dentifera*, but never in abundance (except on the above-mentioned occasion). It has also been taken rarely in the woods which cover a good part of the island. This species appears to be more hardy than the other *Polygyra*; it does not go into hibernation nearly so early in the fall. Unfortunately, eaten shells are rather too conspicuous.

It took me a whole season to get used to the habits of these species, so as to know just where to look for them, often going home nearly empty-handed when I had really been in the midst of them. When hibernating, they are most easily seen, the beautiful white (sometimes pinkish) lip of *P. dentifera* Binn. catching the eye when exposed to view. Early in the spring, when just out, they are more

difficult to find, as they adhere to the dead leaves, and, unless felt, may then easily be turned over and lost.

*Polygyra monodon* Rack. This species is well-distributed and very common in places on the cliff side at the Island. I have a record of 140 specimens taken November 12, 1892, and have found 20 or more all together—in fact, on the cliff side, either in the fall or spring, it is usual to find these large families buried together in the loose, shaly rock. At other places where I have collected, it has been unusual to find more than a pair together. A few of my Isle d'Orleans specimens are very fine, and have the umbilicus unusually large.

*Polygyra monodon* Rack, var. *fraterna* Say. A few approaching this variety were taken in the neighborhood of the Gomin swamp on the mainland.

*Vallonia pulchella* Müll. Common on the mainland at foot of cliffs, and on the Plains of Abraham, also observed on the Island.

*Vallonia costata* Müll. Occurs with *pulchella* on both sides of the St. Lawrence River, but is not so plentiful.

*Vallonia excentrica* Sterki. Local, at foot of cliff at St. Joseph's with *pulchella*, not observed elsewhere.

*Vallonia labyrinthica* Say. Chiefly from the Island, and generally from the dryer parts of the woods.

*Pupa armifera* Say. Recorded by the late Abbé Provancher as being common on the Plains of Abraham; it may be taken there in some abundance with *Vallonia* from under pieces of rock. I have taken single examples on the Island and at Levis.

*Sphyradium simplex* Gould. Rare, Island d'Orleans.

*Vertigo milium* Gould. A few on the mainland, more common on the Isle d'Orleans.

*Vertigo ovata* Say. Fairly plentiful in some localities.

*Vertigo gouldii* Binn. Rare, Isle d'Orleans.

*Vertigo ventricosa* Morse. Rare, Isle d'Orleans.

*Vertigo pentodon* Say. Isle d'Orleans, local. This shell has a habit of coating itself with dirt, like *Succinea avara* Say, and consequently it is difficult to find.

*Vertigo bollesiana* Morse. Common on mossy rocks under cliffs at St. Joseph's and St. Romauld's. A form taken with this, Dr. Sterki calls the New England variety.

*Vertigo curvidens* Gould. Isle d'Orleans, rare.

*Ferussacia subcylindrica* L. Two easily separated forms of this species are found in the district; one occurs everywhere and is abundant, the other has only been taken in damp woods on the Isle d'Orleans, and is a larger shell.

*Succinea avara* Say. Local.

*Succinea ovalis* Gould. Not at all common. Both these species are smaller in size as compared with specimens from western Ontario.

*Succinea obliqua* Say. The ravine running into the St. Charles River is a splendid place for this shell. During hibernation I have, on several occasions, taken 200 fine specimens in a short time, and some are the largest I have ever seen or captured. I am inclined to think that some of them would pass for *Succinea totteniana* Lea; there certainly appear to be two forms. In cleaning some of these shells taken on November 8, 1891, a few of the finest living specimens contained the peculiar parasite, reference to which is made by Dr. Dall, in his useful pamphlet, "Instructions for Collecting Mollusks, etc." (*Leucochloridium*).

*Carychium exiguum* Say. Very common in decaying vegetation in woods and all damp places.

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#### NEW LOWER CALIFORNIAN BULIMULI.

BY H. A. PILSBRY.

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##### *Bulimulus hypodon* n. sp.

With the general form of *B. spirifer* Gabb, this smaller species differs in the more convex lateral outlines of the spire and the much shorter body-whorl, which in a dorsal view is not produced and oblong, but short and transverse, and with the suture ascending somewhat toward its termination. Whorls  $7\frac{1}{2}$ , surface with an oily polish, only slight growth-lines, but under the lens showing close, *fine incised spiral striae, without trace of granulation*. Aperture slightly over half the total alt.; *peristome very broadly and flatly reflexed*, recurved at the edge, the margins joined by a rather heavy callus, but without defined edge. Columella distinctly truncate at base; internal lamina well-developed, thin, *triangular*. Color almost white, the cuticle with an extremely faint buff tint. Alt. 25, diam. 12.5 mm.; alt. of aperture (including peristome) 13, width 10.2 mm.; width of reflexed outer lip 2.3 mm.

Lower California, exact locality unknown.